

24 DEC 1970

MEMORANDUM FOR: Director, Office of Basic and Geographic Intelligence

THROUGH

: Director of Logistics *AFB*
7 JAN 1971

SUBJECT

: Automated Correction/Edit System for Production of the National Intelligence Survey

1. The purpose of this memorandum is to draw attention to benefits which may be derived from the utilization of a computerized correction/edit system in your Editorial Division. This correction/edit system would assist OBGI in providing the required corrected magnetic tape as input to the EPIC System, effecting savings in OBGI, this Division, and the Office of Computer Services (OCS).

2. In 1966, when the EPIC System was implemented, one of its goals was the elimination of paired proofreadings in PSD of the material produced on customer or source tape. That goal has not been achieved as yet, because the Editorial Division has been unable to provide the necessary perfect tape as input to the system. The slow printout speed of the typing device (15 characters per second) makes a complete readout and verification of the tapes after source preparation and editorial revision an excessive burden on your Editorial Division.

3. Originally, the source tapes were prepared on the Dura Mach keyboards which produced punched paper tape. When the devices and paper tape system proved unreliable, a switch was made to the equipment used today--the IBM Magnetic Tape/Selectric Typewriter (MT/ST). Although the MT/ST system is an improvement over the previous perforated paper tape system, there are still limiting factors which prevent the elimination of the paired proofreadings in PSD. This is true because the tapes cannot provide the necessary codes to produce an exact rendition of the intended manuscript, and also because extensive verification is required after computer processing in order to insure that the necessary changes and additions (e.g., accents) have been made.

SUBJECT: Automated Correction/Edit System for Production of the
National Intelligence Survey

4. In order to provide the Editorial Division with a correction/edit system that would fulfill their requirement for producing clean tape and, subsequently, eliminate the paired readings, the EPIC System Development Team (members representing PSD, OCS, and OBGi) solicited and obtained preliminary proposals from 11 companies for design, installation, and maintenance of a system that would permit conversion of the MT/ST tapes to computer compatible tape, provide for display and edit capabilities on either a cathode ray tube or selectric terminal, printout at 350 lines per minute (480 characters per second), and out-put the updated manuscript to a computer tape for processing through the EPIC System.

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5. One firm, [REDACTED] demonstrated an operating system called "Astrotype" which the EPIC team concludes will meet the design characteristics mentioned above. Such a system would cost approximately \$75,000 if purchased, or would rent for \$2,400 per month. It is felt that the \$2,400 per month would be more than offset by the following savings for PSD, OCS, and OBGi:

a. Savings in PSD would amount to 4 manyears (\$4,000 per month) by eliminating paired readings, eliminating the requirement for keying and proofing lengthy change statements, and reducing the work involved in the updating of tapes. PSD could also eliminate one MT/ST at \$264 per month.

b. Savings in OCS would amount to \$1,176 per month. This figure reflects a reduction in the total Central Processing Unit (CPU) time for the Autoformat Program (which processes the changes), and visualizes one less update per job. NIS production now requires about 8.4 hours per month CPU time for the Autoformat Program. Updates take an average of 2 minutes each. Sixteen less updates per month would result in savings of \$210 for CPU and printout time.

c. Savings in OBGi would be reflected in the elimination of two MT/ST's at \$273 per month for each.

SUBJECT: Automated Correction/Edit System for Production of the
National Intelligence Survey


6. In summary, it is estimated that the monthly rental cost of \$2,400 would be more than offset by the identifiable savings of \$6,000 per month in men and equipment for PSD, OBGI, and OCS, as mentioned in the preceding paragraph. The system also will add to the efficiency of the Editorial Division by allowing more tapes to be processed with the same number of people and provide greater flexibility in handling other work such as the Fact Book and Status Reports. I hope that you will be able to proceed with the implementation of this improvement in NIS production as soon as possible. The EPIC System Development Team will be available to provide detailed specifications for acquisition of the equipment and also for any additional information desired.

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Chief
Printing Services Division, OL


CONCURRENCES:

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OCS Member, EPIC/SDT


4 JAN 1971
Date

25X1A


OBGI Member, EPIC/SDT

24 DEC 1970
Date

25X1A


OL/PSD Member, EPIC/SDT

12-24-70
Date

SUBJECT: Automated Correction/Edit System for Production of the
National Intelligence Survey

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4 JAN 1971

Date

OL/PSD Member, EPIC/SDT

cc: D/OCS
✓ DD/S IPC
DD/I IPC

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Project - EPIC

13 March 1970

MEMORANDUM OF UNDERSTANDING

SUBJECT: EPIC System Development Team

1. In the interest of expediting the continuing development of the EPIC System as an efficient and reliable process for the composition of Agency publications, a working team has been established. The immediate objectives of this team are:

a. To improve the present Photon 513 system, including better methods for computer debugging and test procedures, proofing and clerical operations, computer processing, and other related operations. The specific objective is to achieve maximum printing production.

b. To place the Photon Model 713/20 into full production as quickly as possible, utilizing the EPIC System.

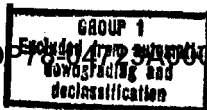
2. The longer range (6 months to 5 years) objectives of the EPIC System Development Team (EPIC/SDT) are:

a. To reexamine all aspects of existing EPIC procedures and computer programs in order to assure that they are technically sound, maximally efficient, and responsive to current and anticipated publications production requirements of the Agency.

b. To identify, develop, and implement such additional computer programs and related procedures as may be required to realize the printing production potential inherent in the EPIC System.

c. To examine and develop recommendations relative to supplementary systems in areas of intelligence publications production other than printing which offer a potential for increased efficiency and effectiveness through utilization of the EPIC System.

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3. The EPIC/SDT will consist of the following, with roles as indicated:

a. Office of Computer Services (OCS):

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(1) [REDACTED] who will serve as team leader and as monitor of OCS activities in support of team activities. He is authorized to establish target dates for the completion of approved tasks and to request the allocation of OCS and PSD resources to meet such dates. As OCS project monitor, he also will coordinate all team activities and secure internal OCS and PSD approvals as and if required. Team recommendations involving major design and analysis efforts, new equipment, and other resources not then available will be presented in such manner as to permit decision at the appropriate level. As EPIC/SDT leader, he will coordinate team tasks and priorities with the Chief, PSD and will keep him informed on a continuing basis relative to the status of approved tasks, problem areas and developments affecting team operations. He will assign specific tasks to team members and will coordinate their efforts in such a manner as to meet the team objectives most effectively.

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(2) [REDACTED] is presently the analyst programmer in charge of the EPIC System, and will continue in this capacity. Additional team members will be assigned from OCS as specific tasks, duties, and responsibilities are identified. The development of programming specifications, programming, testing, documentation, and system maintenance are known to be required, but to what extent and for how long is not known. In addition, Operations Division, OCS, has agreed to provide advice relative to machine processing problems, and processing implications of current or proposed systems; and to arrange for the timely processing of required material. Such advice will be coordinated through the Chief, Operations Division.

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b. Printing Services Division (PSD):

(1) [REDACTED] who will monitor the accomplishment of team activities within PSD, obtaining necessary approvals and resources therefor as appropriate. He also will be specifically tasked by the team leader to develop, define, and advise concerning the specifications pertaining to programs under development and to translate proposed additional requirements for the continuing development of the EPIC System into specifications for computer programming and will accomplish such other tasks as may be assigned by the team leader.

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(2) [REDACTED] who will provide a continuing evaluation of the results of computer programs and other aspects of the EPIC System which are placed into production or are undergoing production testing. He will assist in the development of testing procedures, maintain the EPIC Procedures Manual in a current status at all times, monitor the training of PSD personnel involved in the System, and accomplish other tasks as assigned by the team leader.

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c. Office of Basic and Geographic Intelligence (OBGI):

[REDACTED] who will advise relative to format and other requirements of the National Intelligence Survey publications, assist in the reexamination and continuing evaluation of input for the EPIC System, coordinate and obtain approvals within OBGI required to implement team objectives, and accomplish other tasks as assigned by the team leader.

d. It is agreed that the identified team members from PSD and OCS will be available for team activities on a full-time basis, if such is required. Until otherwise agreed, the EPIC/SDT will remain in being until 1 February 1971, at which time an evaluation will be made of progress, work to be accomplished and further action necessary.

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Chief
Management Support Division, OCS

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Chief
Printing Services Division, OL

Distribution:

- Orig. & 1 - C/MSD/OCS
- 1 - OL/PSD (Official)
- (1) - C/SSS-DD/S
- 1 - OL/PSD/SS
- 1 - OL/PS

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15 August 1969

MEMORANDUM FOR THE RECORD

SUBJECT: EPIC

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I met with [REDACTED] for a short time on Friday afternoon 8 August 1969 to discuss the EPIC project and the concerns felt by the Chief, Printing Services Division. I asked [REDACTED] why he had allowed [REDACTED] to have access to [REDACTED] memorandum and he said he felt the memo represented an accurate description of the OCS appraisal of the project. He also wanted [REDACTED] to know that EPIC was now a part of [REDACTED] responsibility in competition with other systems of direct interest to the Director of Logistics. I told him I thought there might have been a more prudent way to get this point across but didn't pursue the subject further.

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As reflected in my conversation with [REDACTED] the Printing Services Division feels that there have been no changes in their objectives or requirements since the project was undertaken. [REDACTED] on the other hand, feels that there have been a great many changes which have come in what amounts to virtually a continual flow. [REDACTED] agrees that the objectives haven't changed but within the broader context as expressed by [REDACTED] there have been many specific examples of changes which have required reprogramming or additional programming. One example [REDACTED] gives is the changes in input devices used by customers in the community. PSD does not consider that these are changes but [REDACTED] does because they require additional programming.

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With regard to [REDACTED] allegation that nothing has been done toward estimating the magnitude of the problem of converting from the 513 to the 713, [REDACTED] says that he can do nothing until he receives specifications from PSD and these have not been presented. [REDACTED] feels that specifications have been presented but in any case if they were not satisfactory to OCS, the initiative should have been taken by OCS to solicit them. The weekly meetings they have agreed to have should resolve this problem.

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With regard to the [REDACTED] allegation that the system should be totally redesigned, [REDACTED] are independently in agreement that this is a redesign of computer programs. However, [REDACTED] takes the position that this is another change introduced by PSD which was not coordinated with OCS and which they had not included in their plans. The need to redesign the programs is occasioned by the upgrading of equipment in PSD and not by any requirements generated in OCS.

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[REDACTED] continues to talk about man years whereas [REDACTED] insists on full time personnel. I believe this point has been clearly made with [REDACTED] now and both [REDACTED] understand that there will be no change in priorities or the level of support to EPIC without the approval of the Director of Logistics and the Assistant Deputy Director for Support.

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[REDACTED]

Chief, Support Services Staff

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13 August 1969

MEMORANDUM FOR THE RECORD

SUBJECT: EPIC

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██████████ called me Thursday August 7, 1969 to say that he was disturbed by some of the implications of a discussion he had in a meeting with ██████████ and other OCS people earlier in the week. I visited ██████████ in his office later Thursday afternoon.

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██████████ concern grew out of a meeting with OCS which was called to discuss progress which had been made toward three objectives which had been agreed upon in a meeting with OCS on June 6, 1969. The three objectives agreed upon were to complete the debugging of the programs for the Photon 513; reduce the through-put time of EPIC materials; and define the problem and develop estimates of what would be involved in converting from the Photon 513 to the newly installed Photon 713. ██████████ was disturbed to learn that nothing had been done toward defining the conversion problem and it was agreed that representatives of the Printing Services Division would meet with representatives of the SIPS Task Force on Tuesday 12 August to evaluate again progress made toward definition of the conversion problem. ██████████ also plans weekly meetings with ██████████ Director of the SIPS Task Force for a mutual exchange of information about problems and progress.

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██████████ was additionally disturbed by a memorandum written by ██████████ Chief of the Materiel Resources section of the SIPS Task Force, to ██████████ evaluation of the EPIC system. ██████████ memorandum expressed his opinion that the whole EPIC system needed redesign and included among the problems inhibiting EPIC progress the allegation that the Printing Services Division was continually changing its requirements. ██████████ was also mystified by ██████████ role and the reasons for his being introduced to this problem at this point in time. ██████████ was additionally concerned with the implication in ██████████ memorandum that the EPIC project was to be given a lower order of priority than had been agreed upon by OCS and PSD as well as the Director of Logistics, the Director of Computer Services, and the Assistant Deputy Director for Support, and that there would be a corresponding reduction in the SIPS Task Force resources allocated to the continued development, refinement, and completion of the implementation of the EPIC system.

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A discussion between [REDACTED] held earlier during the day of 7 August relieved some of the concern generated at the earlier meeting. [REDACTED] apparently renewed his assurances that the level of support to EPIC would not change and they would proceed according to the agreement reached in June.

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I explained the background leading to the formation of the SIPS Task Force, its present structure and responsibility and [REDACTED] role as Chief of the Materiel Resources section. I offered the opinion that the SIPS Task Force people seem to be washing their dirty linen in [REDACTED] laundromat. It seems to me imprudent for the [REDACTED] memorandum to have been released to [REDACTED] because not only was the content likely to stir up controversy, its tone seemed almost certain to cause anger. Its introduction into the discussion seems to me all the more questionable in consideration of what amounts to a substantial retraction by [REDACTED] in later face to face discussion with [REDACTED]

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[REDACTED] makes the point that if the EPIC system needs redesign it is only that part of the system which is the responsibility of the Office of Computer Services, that is the system of computer programs. As far as [REDACTED] is concerned this is an OCS problem, and they can solve it any way they choose as long as the total service to the Printing Services Division does not diminish.

[REDACTED] also feels strongly that he needs assurance that two people will be devoted to EPIC full time. An average of two man years is not acceptable. The [REDACTED] memorandum showed that 3.4 man years were devoted to EPIC during the past calendar year. I would be suspicious of these figures because I believe OCS makes a practice of charging time spent by [REDACTED] and any other management personnel in the Office of Computer Services would be charged to EPIC and therefore the man hours shown would be inflated.

For the present, [REDACTED] is content that I be informed of these developments. He expects no action from me, particularly in view of the most recent discussion he had with [REDACTED]. He said that he had told [REDACTED] that he planned to discuss the EPIC matter with me and expected that [REDACTED] might want to chat about it too.

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[REDACTED]
Chief, Support Services Staff

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6 May 69

PPP exercise demonstrated to DDC need to get himself
better informed.

What are you trying to get -

Where we would like to be 2 yrs from now.
Possible misunderstanding of Epic objectives -
1) be general purpose automation of printing
for Agency requirements for this kind
of printing. NIS to be the first.
Was fully productive in stock catalog
before we programming to new
equipment. Stock catalog ex.
Intend to put all graphic quality printing
on EPC in five years.
Enable PSD to meet printing requirements
of Agency with present strengths or
fewer.

When [redacted] went to PSD jobs were in PSD
or input preparation - Education
campaign - Error reduction to 1
in 78 lines - recent example of 1 in
200 lines. 8/1/78 6/1/80

last June prob appeared in conversion of
paper tape to mag tape.

Experimented with other hardware -
Spectra 70/35.

later change to 360/50, later 360/65
Probs are with programs -

No usable products for 3 months.
Since December that metal.

Now think Phase 1 rewrite program
de-bugged - ready for production test.
4 tests worked through Photon.

Immediate objective - get MK material
to pt where can process through
composing in 10 days. 45 part of
this process 6 days.
45 day through not better than ever achieved.
Should be able to do 30 days by January on
M15.

Expect be able to expand to peripheral jobs -
DMA water + beach tables.

STATSPEC

to evaluate feasibility

of automated type setting -

3-5 yrs away from production even
if decision is to go.

NPK doing own - have own Photon and
own UNIVAC equipment - have slow.

NPK will require a full time programmer
to support continuous.

Used to Photon?

Not necessarily - only time being -
other possibilities largely developmental
and more expensive.

Agency requirements don't justify new
exotic - expensive gear.

Photon 513 and 71320 fully adequate
to meet all requirements except

STATSPEC

██████████ and NPK - If tech NPK - would
take their 71320. If ██████████ added -

STATSPEC

would need another - but since
3 yrs away - may be overtaken
by technology.

~~Don't~~

Briggs

Big sophisticated 1st effort. Rewards and penalties for being pioneers.
Murphy's law, any go wrong will.
Changes almost daily as of this a.m.
Looks pretty good.

If we take on 24 hr turn around
should look at system.

Don't have good feel for cost.
System includes customer - printer -
and computer.

JWC. Why so fragile today?

Briggs paper to mag tape - drop bits -
Poss. of supp with contractor & oppo-
except in last resort -
Poss of computer for PSD - Briggs tempted
in exasperation - not as agency mgr.
[redacted] doesn't want -

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STATSPEC

[redacted]
talking about our computing system -
but system not likely to be applied -

STATSPEC



* needs complete sys anal
all the way from collection to final
output.

Present EPIC not suitable for 24 hour
production.

Should plan budget for contingency
of new plans by customers
which will require support.

System philosophy.

NTBT -

Uniform input.

ADMINISTRATIVE

22/564-1312

Projects - EPIC

Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

UNITED STATES GOVERNMENT

INTERNAL USE ONLY

Memorandum

TO : Director of Logistics

DATE: 18 MAR 1969

FROM : Chief, Printing Services Division, OL

SUBJECT: Report of Travel

1. As you know, I visited Time-Life editorial offices in New York City on 11 March 1969. This was, in a sense, a return visit inasmuch as we played host here to several Time-Life representatives on 9 April 1968. I was accompanied by [REDACTED]

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[REDACTED] Chief, Publication Division, OBGI.

2. Time-Life is heavily involved in computer-assisted typesetting. They have an IBM 360/40 computer, with all necessary peripheral equipment, committed solely to their printing operations. Keyboarding is accomplished on a battery of teletype tape perforators, with preliminary editorial work marked up on machine printouts. After necessary updating, a tape is perforated which is then transmitted via dataphone to Time-Life's printer (Donnelly Company in Chicago) where it is used to drive linotype and monotype machines. Time-Life also has Photon phototypesetters (Models 200 and 260) in New York which are used for book composition work and for setting galleys of type for their machines which are used by their editorial staff in making up complete pages. These pages are then transmitted by Xerox LDX to Chicago for use by the printer. As you can see, the editorial staff in New York City assumes total responsibility for all composition and, once its desires are transmitted to the printer, no further dialogue is necessary between the publisher and the printer. This, in a modified form, is what we are working toward in our NIS program and both [REDACTED] and I felt that the trip was helpful in firming up our perspective in regard to our own work.

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DD/S Distribution:

- 1 - DD/S Subject (was routed to Asst. to the Dir & returned to DD/S)
- 1 - Routed to D/OCS, [REDACTED] OCS, C/SSS, for info (4/8/69)

STATINTL

ADMINISTRATIVE

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INTERNAL USE ONLY

3 March 1969

MEMORANDUM FOR THE RECORD

SUBJECT: EPIC

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1. [REDACTED] Chief of the Printing Services Division, telephoned to say that he was about to go into the third round of meetings with [REDACTED] of the Office of Computer Services to try to identify specifically the hardware and software resources which will be required and available to support the EPIC project during the next year. The Office of Computer Services presently has two programmers assigned full time to the EPIC project from the Management Support Division (SIPS Task Force) and this is not enough to meet the requirements. [REDACTED] asked me for my assessment of what the DDS might consider the priorities to be between SIPS and EPIC if there were a recommendation that additional people from the SIPS Task Force be assigned to the EPIC project. I said I wasn't absolutely certain I could speak for the DDS on this question because I had not discussed it with him but I thought he would be extremely reluctant to divert resources if it were to mean further slippage in the progress of the SIPS project. [REDACTED] also asked whether I have had any recent conversations with Chuck Briggs and whether I knew if his reservations had been dissipated. I said I had not talked further with Briggs about it but I would try to reach him if it would be helpful to [REDACTED] in his meeting with [REDACTED]. We agreed to postpone such a discussion until after the meeting when we would know whether [REDACTED] were voicing any reservations representing an OCS position.

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2. Later in the day [REDACTED] called again to say that [REDACTED] and [REDACTED] had given no evidence that there were any reservations in the Office of Computer Services about pointing the project in the right direction. He felt that [REDACTED] were being very helpful in trying to find solutions to the problems. [REDACTED] had expressed the opinion that manpower could be made available from the SIPS Task Force without interfering with the progress of the SIPS project because of the timing. EPIC's requirements are for immediate programming assistance and [REDACTED] estimate is that the SIPS project is not yet ready to absorb all of the programming resources he has available. They are planning to proceed with the development of complete specifications for the input editing part of the system. [REDACTED]

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has agreed to help with the development of these specifications which will be used in determining what hardware configuration should be selected. When this has been completed the Printing Services Division will prepare a paper stating the objectives of the project and recommending proposed solutions which they will submit for DDS approval.



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Chief, Support Services Staff

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24 February 1969

MEMORANDUM FOR THE RECORD

SUBJECT: Status of the EPIC Project

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1. On Friday 14 February 1969 I attended a briefing given by [REDACTED] in his office for Chuck Briggs [REDACTED] from the Office of Computer Services. [REDACTED] of the Printing Services Division were also present. The purpose of the briefing was to clarify the objectives of the EPIC program; restate and clarify the printing requirements of the Agency to which EPIC is expected to respond; to review the history of the project and its original concepts; to describe the current status and objectives of the program and evaluate its needs.

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2. Referring to a memorandum dated 4 May 1964, [REDACTED] said that EPIC was to be a general purpose printing program for any printing requirement that could be advantageously produced using the system. The National Intelligence Survey was selected as the first publication but it was anticipated that the system would be used to satisfy other pending requirements as soon as its practicability had been tested and proven feasible. Mr. Briggs had expressed some concern that the EPIC program was going beyond its original intent; that additional publications were being added without proper planning; that the project had not yet demonstrated the capacity to achieve the original objectives; that the project had originally been approved based on the projected savings in manpower and money and that these savings had not been realized; and he feels that the original projections of savings were slanted toward printing costs and manpower overlooking the costs in computer manpower and money necessary to support the project. He had expressed the view that a total management review of the project is called for to determine whether we should proceed with the current plan for the project or alternative methods of satisfying the Agency's printing requirements should be sought. I had the impression during the meeting that he had been satisfied that there had been responsible management review and that the project should proceed as planned but in a telephone conversation later in the day he said that he was not satisfied on this point.

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3. Technical feasibility has been established but operational feasibility has not been proven because of programming problems which have been experienced in processing the input. The status of the

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project is essentially the same now as it was two and one-half years ago. Experience during the past few months shows that through-put time using the EPIC system is consistently greater than it has been for ordinary type setting.

4. The Printing Services Division takes the position that the time for decision has arrived. They have considered several alternatives and solicited assistance from the Office of Computer Services in developing estimates of the costs and capability of hardware configurations which might be installed in the Printing Services Division to process the input. This would permit PSD to work out all of the bugs before the tapes are sent to the Office of Computer Services for the production of the type setting tapes. PSD estimates that OCS is about 21 man months behind schedule in the aggregate toward satisfying the requirements of work orders previously submitted. PSD identifies its primary need to be a dependable input system. A related requirement is for adequate software support. PSD has developed a proposal that consideration be given to the installation of a small computer in the Printing Services Division to process the input and eliminate the bugs before it goes to OCS.

5. The meeting was not conclusive in terms of focusing on an acceptable solution. It was agreed that [REDACTED] would meet with PSD people again to pursue some of these issues further.

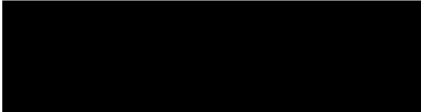
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6. Both parties to this discussion in the Printing Services Division and the Office of Computer Services are feeling frustrated because of the difficulties confronting them in developing acceptable input that will not cause the OCS programs to "hand-up" or "bomb-out" inexplicably.

7. I have not challenged Briggs with the question but I find it easy to form the impression that OCS suggestions that there be a higher degree of management involvement with the overall review of the EPIC program for the purpose of deciding again whether to proceed with the program or select some other alternative for satisfying the Agency's pending requirements are at least as defensive as they are constructive. It was made quite clear in the briefing that the printing requirements were subjected to a complete review and reaffirmation within the past two years. Alternative means of satisfying those requirements have been explored and the conclusion reached that the EPIC system offers the most reasonable means of solving the Agency's problem. What we really need to do is solve the input and computer programming problems and this is something that the Office of Computer Services has not been able to do. Selection of some other alternative for solving the printing problem would relieve OCS of the need to continue to extend manpower and machine time in search of solutions. The

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Office of Computer Services has rather consistently over-estimated its ability to provide programming support to computer applications. The SANCA project was about two years behind schedule in being implemented; the SIPS project still does not have the support OCS promised; and the EPIC project is the current critical example.


Chief, Support Services Staff

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IPC-Projects

EPIC

SECRET

29 January 1969

MEMORANDUM FOR: Chief, Printing Services Division

SUBJECT: Summary Report on the EPIC Input/Output Subsystem

1. The attached report from Operations Division addresses hardware capabilities to accomplish the additional input/output sophistication sought. It concludes on page 17 that either the CDC 1700 or the IBM 360/25 can do the job. That conclusion should not be interpreted as an OCS recommendation that one or the other of those two systems be acquired.

2. Instead of simply adding on to the present EPIC system, I think a completely new, overall systems study is required. The early EPIC project was fairly narrowly defined; it has broadened significantly. It is complex and frustrating, still, to both of us. There has been a tendency to order or change hardware, then change the system to conform. The attached report is, in essence, of that kind.

3. I agree that we need to consider general purpose printing requirements and systems; that is all the more reason for a total systems look, including current and projected problem definition, scope, cost justification, etc. The original EPIC/NIS slant is not broad enough; the implications of adding or substituting [redacted] other fast turnaround printing are not well-enough defined in a systems context.

4. I think it highly desirable that Agency management attention to its current and future printing requirements include a look at processing alternatives. We can both benefit from that additional management involvement.

1 - W&L A/attach for WFO

1 - [redacted] attach

Orig + 1 - 5 copies of attach to [redacted]

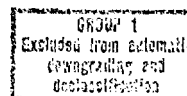
CHARLES A. BRIGGS

Distribution:

Director of Computer Services

cc: [redacted], DDS ✓

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Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

27 January 1969

MEMORANDUM FOR: Chief, Printing Services Division,
Office of Logistics

THROUGH : Director of Computer Services

SUBJECT : Summary Report on the EPIC Input/Output
Subsystem

1. Attached is the Summary Report on the EPIC Input/
Output Subsystem.
2. It has been prepared by Operations Division,
Office of Computer Services, and is an evaluation of
computer equipment in terms of the functional requirements
as stated by Printing Services Division, Office of Logistics,
in the referenced memorandum.


Chief
Operations Division
Office of Computer Services

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Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

GROUP 1
Excluded from automatic
downgrading and
declassification

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27 January 1969

SUMMARY REPORT ON THE EPIC INPUT/OUTPUT SUBSYSTEM

Prepared by Operations Division
Office of Computer Services

Introduction

This report has been prepared by the Operations Division, Office of Computer Services, in response to a request from Printing Services Division (PSD), Office of Logistics, regarding the feasibility of installing computer equipment in PSD for an input/output subsystem to handle certain phases of the present EPIC system and to expand upon certain capabilities of the system.

Purpose of EPIC I/O Subsystem (As established by PSD)

1. To provide local (PSD) capability and control of EPIC input processing for Phases 1 and 2* of the EPIC system.

* Phase 1 - Creation of proof listing and updates; as many as needed with proof listing

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Phase 2 - Page makeup and summary makeup

2. Means of transmitting EPIC input data to a computer center for processing in the EPIC system.
3. Local (PSD) means for reception and output processing of the data product of Phases 1, 2, and 3 of the EPIC system.
4. To accomplish necessary response time requirements for each EPIC phase.
5. To improve input reliability to the EPIC system.

Description of PSD Functional Requirements for an EPIC I/O Subsystem

As originally defined by PSD, the I/O subsystem should have the following capabilities:

1. Data Transmission and Reception: The subsystem will have a means of transmitting and receiving data between the Computer Center and terminal at PSD.
2. Input Processing: The subsystem will have means for accepting as input 6, 7, and 8 level paper tape, and MTST magnetic tape. The data on these input media must be

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Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

read, converted and translated so as to create a local display suitably presented for editing. The editing will consist of the addition and deletion of data and the insertion of format (typographic) instructions (macro). The results of the editing will be instantly visible and verifiable on the local display. After editing, the data displayed and amended will be translated to the code and record format suitable for entry into EPIC Phases 1 and 2 via automatic transmission to the Computer Center.

3. Tape Punching: The subsystem will provide a means of punching 6 level tape from data received via automatic transmission from the Computer Center.

4. Proof Production: The subsystem will provide EPIC Phase 1 proof or equivalent and EPIC Phase 2 summary proof or equivalent from data received from the Computer Center.

Attachment I is a description of the purposes and functions of the EPIC I/O subsystem as presented by PSD.

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OCS Assumptions

For evaluation purposes, we have made the following assumptions:

1. PSD has not requested that the EPIC system be redesigned in order to accomplish the stated PSD objectives. Rather, the desire is to interface the EPIC I/O subsystem with the present EPIC system with as little effort and change as possible. (It is recognized, however, that the most valid alternative may include system redesign.)

2. Hardware and programming costs should be kept to a minimum, but no guidance was provided as to how much could be spent. (Originally, PSD established a cost limit of \$150,000 but this limitation was later qualified by stating cost should not be considered.)

3. PSD requires an I/O subsystem which is capable of expansion in order to handle increasing volumes of data to be processed through the EPIC system.

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Factors Not Considered

1. The cost or time required to install transmission lines to PSD.
2. The need or cost of encrypting devices.
3. Physical changes or modifications required in PSD space for the location of the I/O subsystem.
4. The number or types of operators needed or who would staff the PSD facility.

Discussion

The basic requirements as we understand them are twofold. The first is a need for a more effective means of verifying and editing input data received from a variety of remote installations. The second need, which is directly related to the first, is the need to reduce reiterative processing cycles in order to significantly shorten the elapsed time between job initiation when the data is received and job completion when the final output is produced in PSD.

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OCS investigated the potential use of computer equipment produced by several manufacturers. The computers investigated for the I/O subsystem were:

IBM 360/25
IBM 360/67 (with CP-67)
IBM 1130
CDC 1700
Honeywell
Digital Equipment Corp:
PDP 8 and 9

(Others were given a cursory investigation)

The IBM 1130 and the Honeywell equipment were found lacking in some facets of hardware and software capability and were rejected. The IBM 360/67 (with CP-67) system, while having some advantages, was not considered further because the software does not support all the hardware devices required. The system is also lacking in other software areas for this requirement.

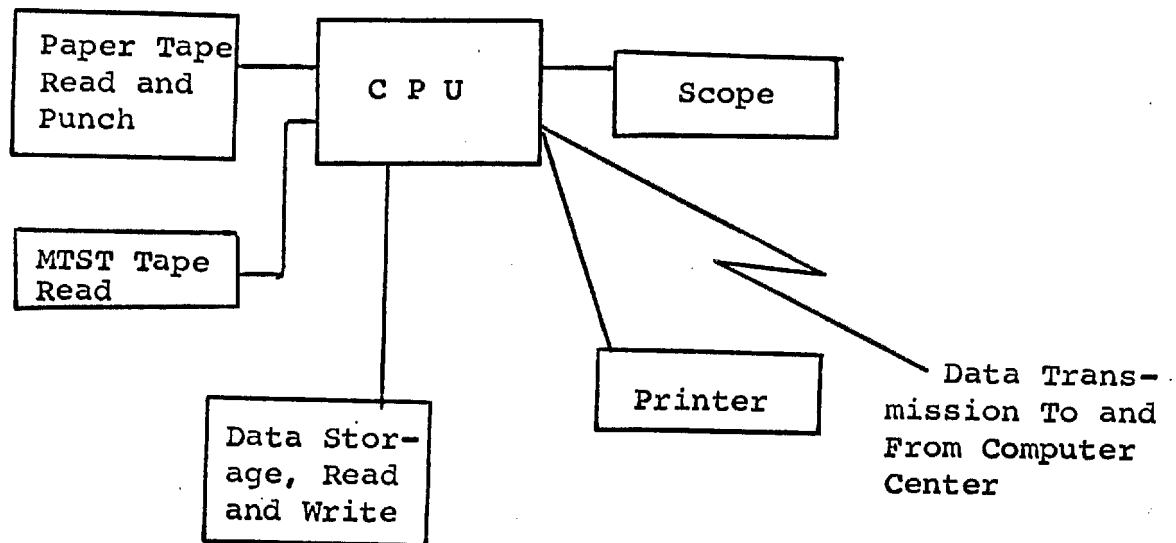
In this report, then, only the IBM 360/25, the CDC 1700, and the PDP 8 and 9 are considered.

Functionally, in each equipment system, the hardware is similar. The following diagram shows the functional

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characteristics of the equipment for the I/O subsystem.



As we envision it, the system would generally operate as follows:

... Paper tape (6, 7, or 8 level) or MTST tape is physically received by PSD from a customer or is created by PSD from hard copy received from a customer.

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... This tape is converted via the CPU to data storage. At the same time, it is formatted and indexed so that it is addressable for editing purposes from the scope. The data is also listed on the line printer.

... The line printer listing is corrected and annotated by PSD.

... Using the annotated listing a PSD operator at the scope recalls the data for display on the scope, enters appropriate control and function codes and makes additions, deletions, and corrections as required. As this is taking place, the data is being recreated on the data storage device and may be printed on the line printer for further proofing.

... When this cycle is judged to be complete the data is transmitted to the computer center for entry into the EPIC system.

... After appropriate processing on a 360/65 in the computer center, the output is transmitted to PSD and is written to the data storage device and is listed on the line printer.

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... PSD proofs and makes corrections to the line printer listing.

... Using the annotated listing a PSD operator at the scope recalls the data, displays it on the scope and makes corrections. As this takes place the data is being recreated on the data storage device and may be printed on the line printer for further proofing.

... The last four functions are reiterative until PSD has received and stored all the data for one "job" and is satisfied that it is entirely correct. When this point is reached the data is punched into 6 level paper tape for entry into the Photon equipment.

Hardware/Software Evaluation

IBM, CDC, and DEC can provide the hardware to perform the functions defined. In each case too, there is software available in varying degrees. It is very difficult to determine the degree of effort involved either in modifying the manufacturer provided software or in writing new programs for the I/O subsystem because exact and specific functions have not been defined by PSD, e.g., step by step what each

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program in the software should be.)

The programming effort to interface the present EPIC programs and the 360/65 hardware with the EPIC I/O subsystem and its hardware is about the same in each case. Regardless of which hardware is installed in PSD for the I/O subsystem, the following programs and modifications would have to be written for the 360/65:

1. A program to receive data and file it on disk and to transmit data from disk to PSD.

2. A program to write and format data from disk to tape or a modification to the EPIC program to read and write directly to/from disk and tape.

There would also be procedural and program changes in the EPIC system due to the functions of the I/O subsystem. For example, paper tape reading and punching, and line printing functions would no longer be performed in OCS.

The hardware costs for the EPIC I/O subsystem considered are:

	<u>Monthly Rental</u>	<u>Purchase Price</u>	<u>Monthly Maintenance</u>
IBM 360/25	\$7,854	\$376,480	\$1,039
CDC 1700	7,004	189,510	755
PDP-9		146,064	
PDP-9 (Graphics II)		174,564	
PDP-8		89,364	

These costs do not include the cost of a 2701 Data Adapter Unit in OCS which is required. The approximate rental cost of a 2701 is \$600 per month.

However, hardware costs should not be considered alone. In a system such as the EPIC I/O subsystem, the software and programming costs are not insignificant. In the evaluation of computer systems for the EPIC I/O subsystem, we have considered equipment on the basis of available software and what software modifications or programs would need to be written.

The following paragraphs discuss each system considered.

Digital Equipment Corporation
(PDP-8, PDP-9)

There are three systems involved here; the PDP-8, PDP-9, and PDP-9 Graphics II.

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The PDP-8 is not considered to be an appropriate system because the communications and editing software is not available. Even though the hardware costs are the least of those systems considered, we believe the cost for development of appropriate software would be too high. This estimation is based upon previous experience in developing new software.

The Graphics II system is a modified PDP-9/339 system with standard CRT, disk, and teletypewriter included. The Graphics II processor and software package were developed by Bell Laboratories with hardware available from Digital Equipment Corporation (DEC) and the software is available from Bell Labs at no cost. However, we have not been able to obtain documentation on this software and its capabilities and reliability are unknown.

The PDP-9 system is approximately the same as the Graphics II system except that no editing software is available for this system. The equipment is compatible with the PDP system in the Office of Research and Development (ORD) at Ames Building which does have an experimental editing

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program which perhaps could be modified to meet the requirements of the EPIC I/O subsystem.

Nevertheless, we believe the PDP line should not be considered further. Manufacturer provided software is either totally lacking or is of unknown capability. The PDP line is constantly changing because DEC is a supplier of digital circuit modules and uses the PDP line as one of its vehicles for testing these modules. Interface software would have to be developed. Also, the printer would be a Potter Printer and upper/lower case printing capability would have to be developed. Finally, there is no MTST capability, although this problem could be overcome.

Control Data Corporation 1700

The CDC 1700 equipment is suitable for the EPIC I/O subsystem. However, in considering this hardware there are these disadvantages:

1. There are interface problems in the use of non-IBM equipment.

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2. There is no capability to handle 6 level paper tape.

3. There is no MTST capability.

These disadvantages can be overcome. MTST tape can be converted via a Digi-Data device. In the proposal CDC recommends a Teletype Corporation CX802 Paper Tape Reader so that 6 level tape can be processed. However, Control Data states as follows, "in order for Control Data to completely test and insure that reliability of QSE3763 (Teletype Corporation CX802 Paper Tape Reader Interface) and QSE3815 (1700 to IBM 360 Channel Converter) it will be necessary for the Agency to make the CX802 Paper Tape Reader available to our plant in Minneapolis five months prior to system delivery and the IBM 2821 Controller and the 1403 Printer two months prior to delivery." This statement suggests that the IBM equipment might have to be purchased because, if it were rented, IBM would not allow CDC to alter the equipment. Purchase price of IBM 2821 and the 1403 printer would be approximately \$47,000.

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CDC states that editing software is available to perform on-line editing and correction of source data via the Trend display subsystem and to perform off-line editing and correction of source data via input of updated paper tape or magnetic tape, but also that it would need modification for this specific application. Software for printing and data transmission is also available but would need modification. A paper tape to magnetic tape program is not available.

CDC estimates the programming effort for this 1700 system to be about seven man months. They have offered the services on one programmer for one full year to assist in this installation. This offer is equivalent to about \$30,000 in programmer costs.

Our analysis indicates that the CDC 1700 could perform all the tasks as defined for the EPIC I/O subsystem with reasonable modifications. We have the following reservations:

1. Any programs written for the 1700 cannot run on equipment in OCS.

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2. This Division has no experience with 1700 equipment reliability. Other intangibles such as CDC corporate support and response may be a factor.

3. The interface of certain peripherals on the 1700 is non-standard, e.g., paper tape, and printing equipment.

4. Programming for the 1700 is less familiar to the Agency than for other equipment.

5. The interface of the 1700 with the 360/65 is non-standard.

However, we cannot disregard the fact that the CDC 1700 is much less expensive for hardware, is expandable, and can perform, with modifications, the tasks defined.

IBM 360/25

The IBM 360/25 was the last system considered. It is the most expensive in terms of hardware costs, it is the most sophisticated in terms of available software, and it is interface compatible both in terms of its own peripheral

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equipment and the IBM 360/65. The system can also meet all the requirements including MTST tape conversion.

The major disadvantage of the 360/25 is cost of hardware.

However:

1. Interface requirements are compatible with the 360/65's.

2. Programming languages are compatible, even to the extent that programs written for the 360/25 can be run on the IBM 360/65's or 67 in OCS.

3. OCS is familiar with 360/25 programming languages.

4. OCS is familiar with IBM support and equipment reliability.

It should be noted too that IBM generally provides programmer assistance in the implementation of systems such as this one.

Conclusion:

Either the CDC 1700 or the IBM 360/25 can do the job. We do not recommend for or against either system. If the

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Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

decision is short term and based on economic considerations alone, the 1700 seems the logical choice; otherwise, the 360/25 is attractive.

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ATTACHMENTS

- A Functional Requirements for an EPIC I/O Subsystem
- B EPIC Flowchart
- C PDP-8 System
- D PDP-9 System
- E Graphics II System
- F IBM Proposal
- G CDC Proposal
- H Comparison of Available Software
CDC 1700 and IBM 360/25

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29 May 1968

MEMORANDUM FOR THE RECORD

SUBJECT: Functional Requirements for an EPIC I/O Subsystem

1. Purposes of Subsystem

- a. To provide local (PSD) capability and control of EPIC input processing for Phases 1 and 2 of the EPIC System.
- b. Means of transmitting EPIC input data to a computer center for processing in the EPIC System.
- c. Local means for reception and output processing of the data product of Phases 1, 2, and 3 of the EPIC System.
- d. To accomplish necessary response time requirements for each EPIC Phase.

2. Functional Description

a. Function 1 - Data Transmission and Reception

The subsystem will have a means of transmitting and receiving data between the computer center and terminal at PSD.

b. Function 2 - EPIC Input Processing

The subsystem will have means for accepting as input 6, 7, and 8 level paper tape, and MTST

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magnetic tape. The data on these input media must be read and converted and translated so as to create a local display suitably presented for editing. The editing will consist of the additional and deletion of data and the insertion of format (typographic) instructions (macro). The results of the editing will be instantly visible and verifiable on the local display.

After editing, the data displayed and amended will be translated to the code and record format suitable for entry into EPIC Phases 1 and 2 via Function 1.

c. Function 3 - Tape Punching

The subsystem will provide a means of punching 6-level tape from data received via Function 1.

d. Function 4 - Proof Production

The subsystem will provide:

(1) EPIC Phase 1 proof or equivalent from data received via Function 1.

(2) EPIC Phase 2 summary proof or equivalent from data received via Function 1.

3. [REDACTED] concur in the purposes and functions of the subsystem.

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[REDACTED]
OL/PSD/SS

Distribution:

1 - OL/PSD

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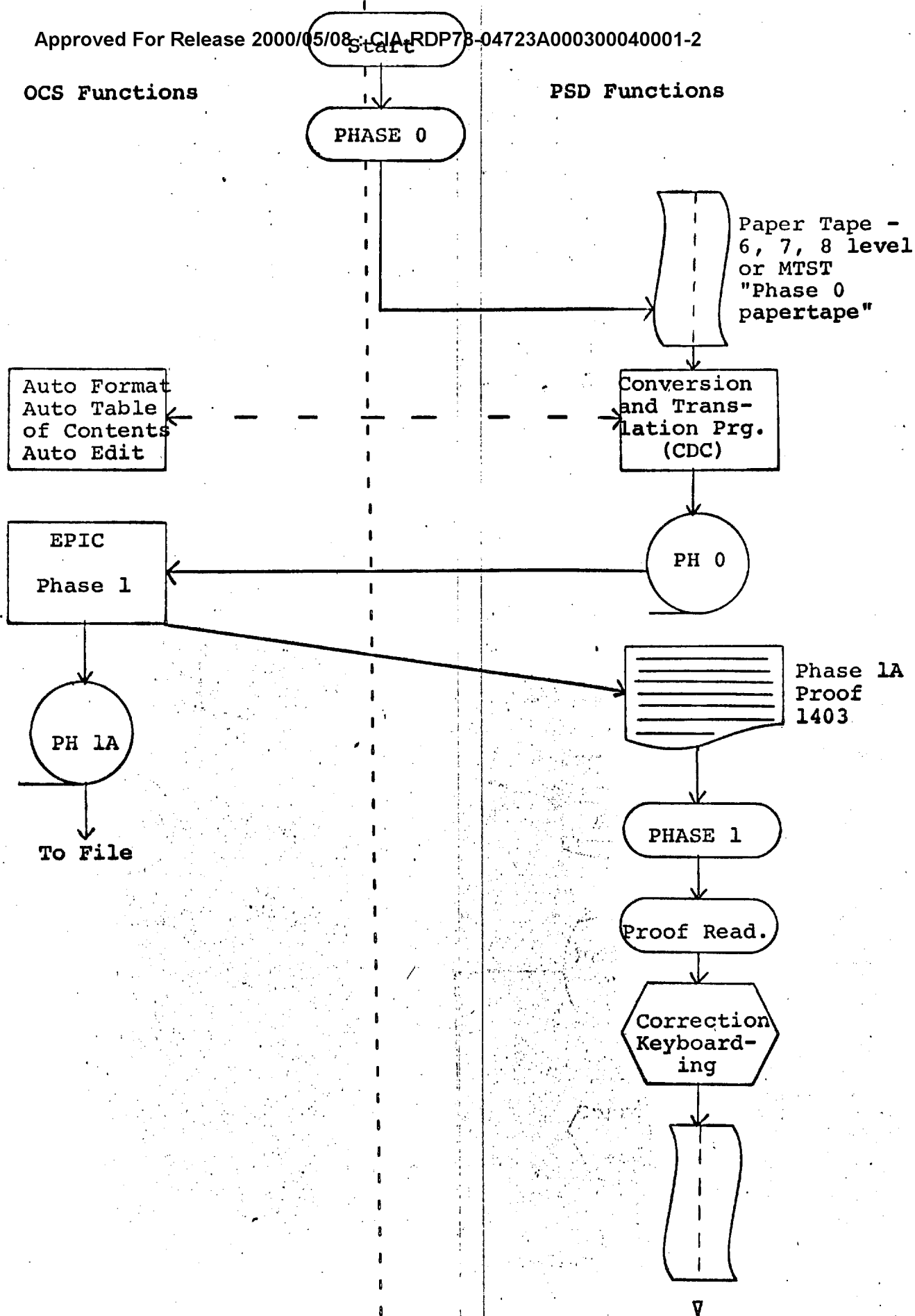
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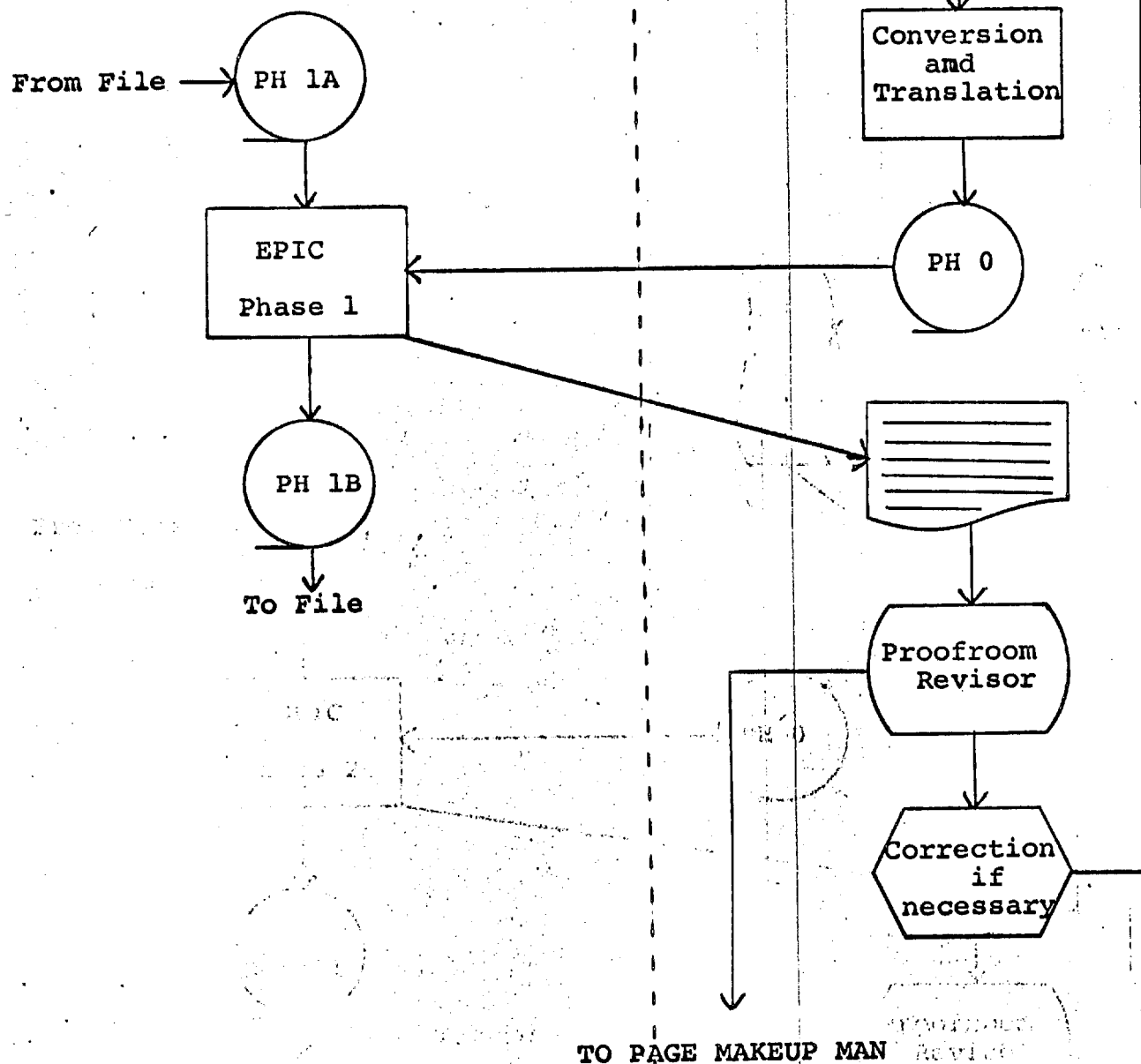
OCS Functions

PSD Functions

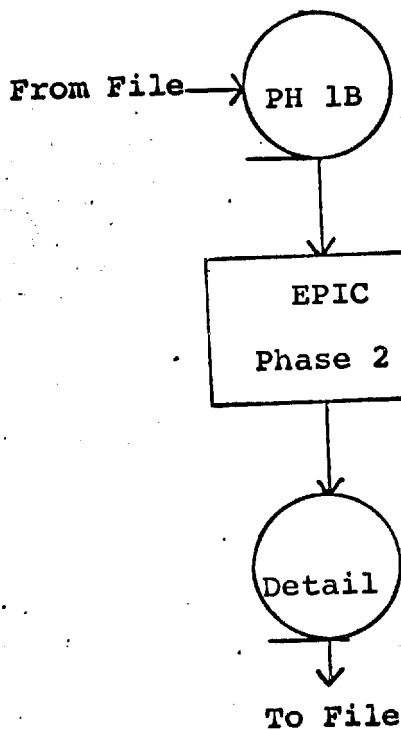


OCS Functions

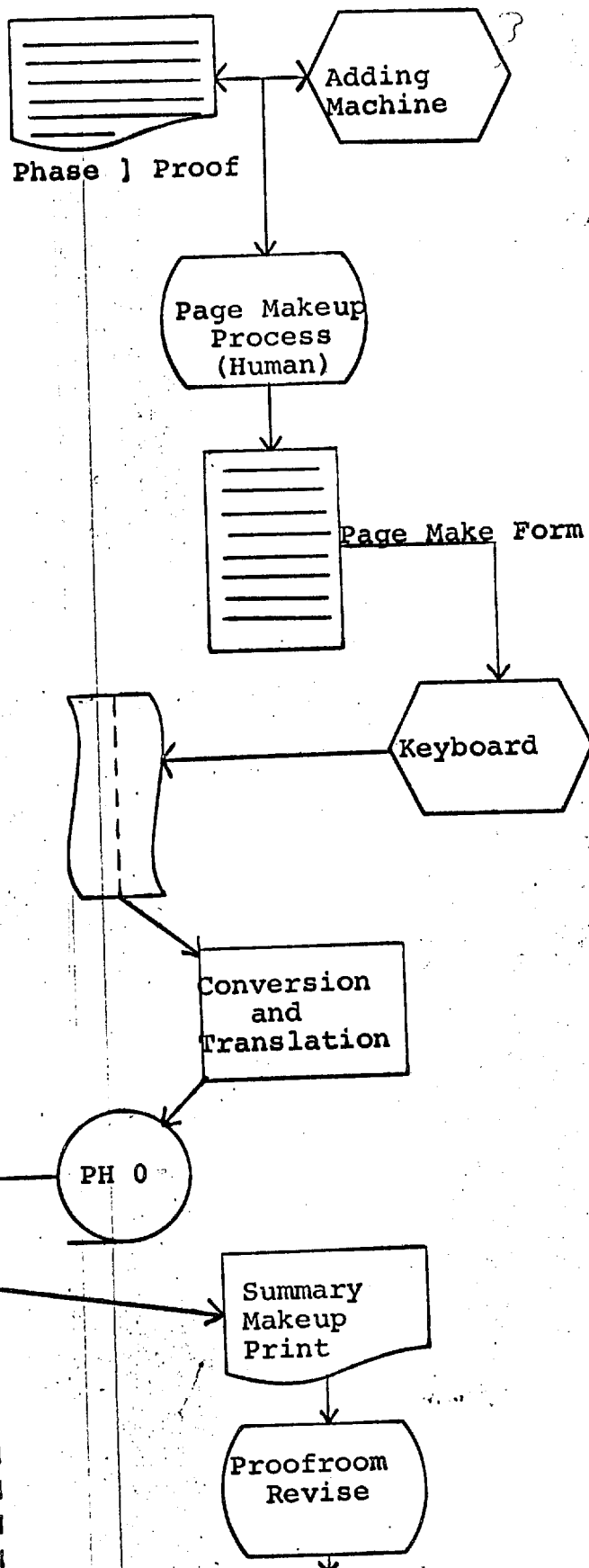
PSD Functions

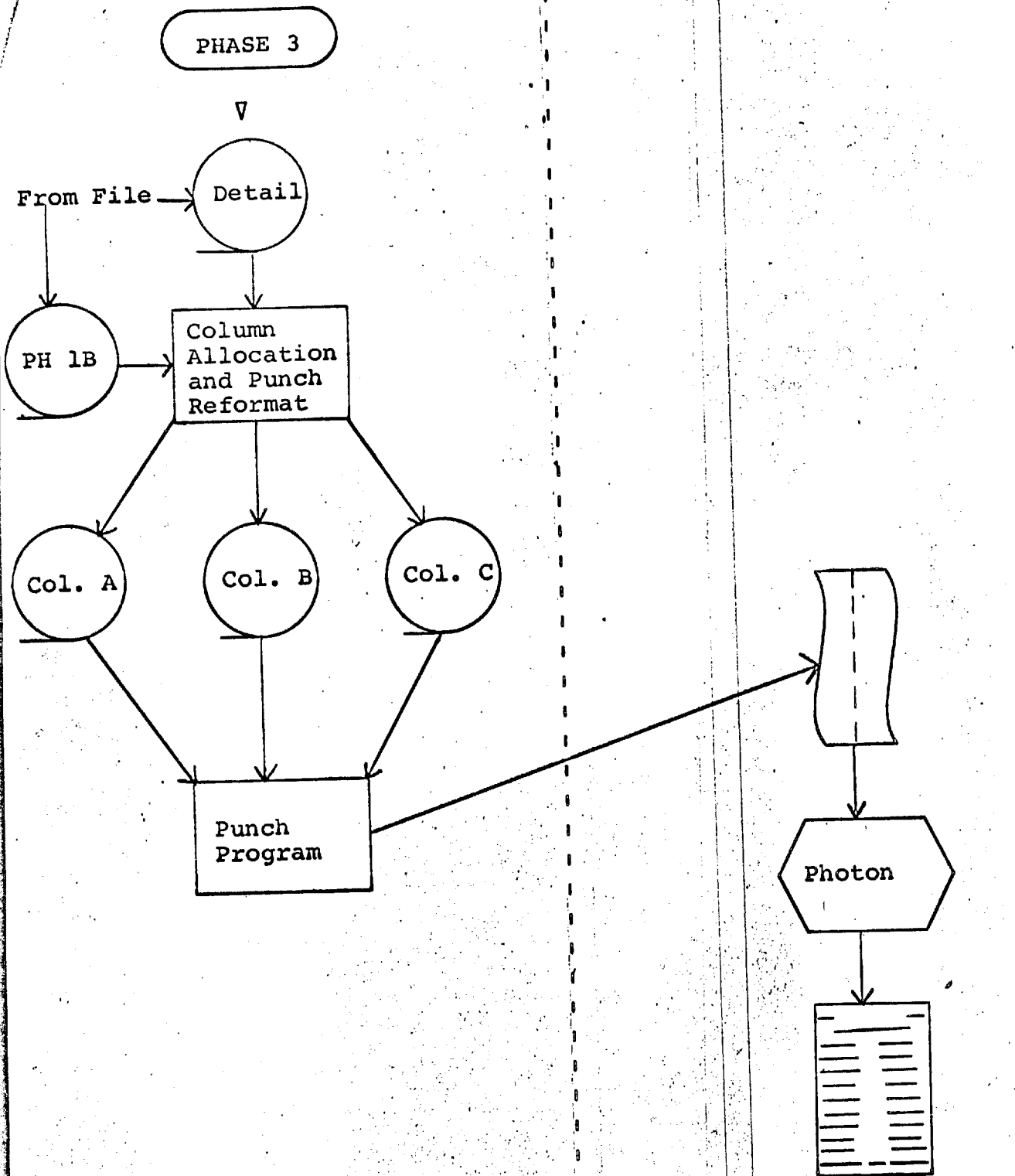


OCS Functions



PSD Functions





PDP 8/I SYSTEM

	<u>Description</u>	<u>Price</u>
	PDP 8/I-C/with 4K Memory	\$13,500
	TC58 Tape Control	10,000
2	TU 20A Tape Transports @ 13,000	26,000
	PT08B Line Adapter	800
	PT08X Line Adapter for Variable Speed	100
	VD8/I A Scope and Controller	6,500
	DF-32 Disk File and Control 32K Words	6,000
	8K Memory	14,400
	CAB 8/I-A Cabinet	700
	PCB8/I Paper Tape Reader and Punch	3,300
	Potter Printer	<u>22,464</u>
	TOTAL	\$89,364



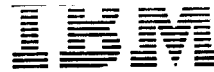
PDP-9 SYSTEM

	<u>Description</u>	<u>Price</u>
	PDP-9 Processor with 8K Memory	\$ 35,000
	KF09A Automatic Priority Interrupt	5,000
	TC 59 Magnetic Tape Control	10,000
2	TU 20A Tape Transports @ 13,000	26,000
	VD 8/I-A Storage Scope and Control	6,500
	Swapping Disks ---- approximately	15,000
	PT08B Line Adapter	800
	PT08X Variable Speed	100
	PC8/I Paper Tape Reader and Punch	3,300
	Potter Printer	26,364
	Addition 8K Memory Increment	<u>18,000</u>
	TOTAL	\$146,064



GRAPHICS II (PDP-9)

	<u>Description</u>	<u>Price</u>
	PDP-9 Processor with 8K Memory)	
	CRT)	\$ 90,000
	Disk)	
	TTY)	
	TC 59 Magnetic Tape Controller	10,000
2	TU20A Tape Transports @ 13,000	26,000
	PT08B Asynchronous Serial Line Interface	800
	PT08X Variable Interface to Permit Speed Specification	100
	PC8/I Paper Tape Reader and Punch	3,300
	Potter Printer	26,364
	8K Memory Increment	<u>18,000</u>
	TOTAL	\$174,564




International Business Machines Corporation

6611 Kenilworth Avenue
Riverdale, Maryland 20840

December 10, 1968

25X1A


Director, Operations Division
Central Intelligence Agency
Washington, D. C. 20505

25X1A

Dear 

I am pleased to submit this report for your evaluation. If you or any member of your staff require additional information or any clarifications, please call me.

Thank you for providing the necessary information that enabled us to respond to the PSD request.

Sincerely,



K. H. Williams

KHW:kms

SECTION I

The system that we suggest for your consideration makes use of the proven programming and systems work that exist in the EPIC system today. We feel every attempt should be made to take advantage of the EPIC system as it is currently functioning, while providing a system that will offer faster turn-around and increased control for the PSD. The objectives of the new system would be to provide PSD with a remote processing facility capable of communicating on-line with an OCS computer and to offer expansion capabilities for upgrading the remote computer to a stand-alone system, eventually with its own remote input and output stations.

System/360 Model 25 has been selected because of the existing 360 software that is available with the EPIC system and the compatibility offered by this computer system. The Model 25 is the latest addition to the 360 line. It has been designed with the knowledge and experience gained from the installation and use of previous models of System/360.

The Model 25 has the same powerful instruction set as the larger System/360 models and can utilize the proven System/360 Application and Programming Systems support. Basic PL/I, COBOL, and RPG programming languages are available on this system.

In Section II a configuration is recommended that will provide the following capabilities.

The primary inputs will be processed on this system. These inputs include all paper tape, 5, 6, 7, 8 level; and MTST cartridges. The translation of these inputs are performed in the 360/25, and the data is recorded on disk storage. When the data is recorded, an index is generated. This index will contain all the information necessary to retrieve the data for future processing. The programs to accomplish this task would be modifications of ET012 and ET038.

The data can be retrieved from the disk storage via a 2260 display unit. The system is capable of retrieving on document number, page number, and line number. When the data is viewed on the screen, changes can be made by entering data via the keyboard which in turn will update the data on the disk.

Once the data has been edited, it will be transmitted to OCS. The editing procedure should reduce the number of repetitive runs required to obtain an error-free product. Also, using the 2260 display unit, control information can be added to the text. This control information will provide data to the succeeding phases of the EPIC system processed in OCS.

There are two appropriate methods of receiving and transmitting the data in OCS.

A transmission control unit in OCS can have as its I/O device an off-line magnetic tape unit. This tape unit can be switched to a 360/65 after the data has been transmitted from PSD. The tape unit can again be switched off-line to transmit the data to PSD after processing is completed on the 360/65.

The IBM 2701 transmission control unit can provide the communication interface to the 360/65 from the 360/25, as is done with the Remote Job Entry system currently installed.

The 360/25 system will print the outputs from Phase I and II. The programs used will be a modified version of ET028 and a disk to printer utility program. The Phase III output will be punched on the 1018 paper tape punch. A program to punch the paper tape must be written.

System 360/25

	<u>Description</u>	<u>Rental</u>	<u>Purchase</u>	<u>MMMC</u>
2025	Processing Unit Model DC, 24,576 Bytes of Addressable Program Storage	\$2,010.00	\$101,300.00	\$ 220.00
	4590 Integrated 1403 Attachment	450.00	22,860.00	45.00
	5100 Multiple Character Set Adapter	15.00	720.00	3.50
	4598 Integrated 2311 Attachment	370.00	18,800.00	35.00
	4580 Integrated Communications Attachment	275.00	13,750.00	16.00
	7551 Synchronous Data Adapter	250.00	12,500.00	16.00
	5248 Multiplexer Channel	150.00	7,620.00	10.00
	4470 Floating Point Arithmetic	NC	NC	NC
1052-7	Printer-Keyboards	65.00	2,725.00	17.00
1403-2	Printer	775.00	34,000.00	177.00
	9725 Adapter Model 25	NC	NC	NC
	4740 Interchangeable Chain Cartridge Adapter	75.00	3,125.00	NC
	5110 Multiple Character Set Feat.	10.00	450.00	1.75
	9709 360 Adapter	NC	NC	NC
1442-N1	Card Read Punch	525.00	26,250.00	75.50
2495	Tape Cartridge Reader	350.00	19,250.00	155.00
2826-1	Paper Tape Control	285.00	14,825.00	35.00
	5801 Punch Adapter	100.00	5,100.00	9.00
	5820 Punch Checking	30.00	1,525.00	1.00
	6101 Reader Adapter	85.00	4,350.00	8.00
1017-2	Paper Tape Reader	75.00	3,675.00	17.00
1018-1	Paper Tape Punch	125.00	5,560.00	40.00
	7801 Tape Up	25.00	1,225.00	6.00
	3800 Error Correction	25.00	1,225.00	1.00
2848-3	Display Control	435.00	18,530.00	24.00
	3357 Adapter	103.00	3,880.00	5.00
	5341 Non-destructive Cursor Adapter	5.00	215.00	.50
	5340 Non-destructive Cursor	10.00	430.00	1.00
2260-1	Display Station	31.00	970.00	8.25
	4766 Alphameric Keyboard	20.00	600.00	1.50
2311-1	Disk Storage Drive	590.00	25,510.00	55.00
2311-1	Disk Storage Drive	590.00	25,510.00	55.00

Any order for the proposed equipment will be in accordance with the Prices and Terms and Conditions of the applicable Federal Supply Schedule Contract. The current contract number is GS-00S-76158. This proposal shall expire 90 days from its date unless extended by IBM in writing.

SECTION III

Programming Estimates:

There are many software organizations capable of providing the applications programming required to implement this system. The Federal Systems Division of IBM is one which has this capability. Based on the information we have, an estimate of ten man months are required to flow chart, program, debug, and document the programs for the 360/25 system. This estimate should be used for planning purposes only.

bcc:
J Burke
W Sedr
P French
R Tobin
D Fellenz



10 January 1969

Central Intelligence Agency
McLean, Virginia

Attention: [REDACTED]

25X1A

Gentlemen:

Subject: Control Data 1700 Computer System

Control Data Corporation is pleased to submit the accompanying proposal for the sale and maintenance of a Control Data 1700 Computer System for installation at the Printing Services Division.

The proposed system will enable the Printing Services Division to substantially enhance the efficiency of its present computer-assisted page composing system by: (1) automating and/or semi-automating existing manual functions, (2) permitting input/output operations currently performed by the Office of Computer Services to be performed within the Printing Services Division, and (3) providing a high-speed (up to 40.8 KC) communication link between the Printing Services Division and the Office of Computer Services.

To facilitate your analysis of the proposal, it has been divided into sections: I - System Concept, II - Hardware Components, III - Software Support, IV - Maintenance Service, V - Training and Technical Services, and VI - Expansion Capability. Four separate pricing schedules are also included: (1) Purchase Prices, (2) Rental Prices, (3) Extended Term Rental Prices, and (4) Maintenance Prices and Extended Maintenance Coverage Prices.

Procurement and acceptance criteria will be in accordance with Control Data Corporation's current GSA Schedule, Contract Number GS-00S-76156, a copy of which has been included with the proposal. Again, to facilitate your analysis of the proposal, references are made to specific items appearing in the GSA Schedule where necessary.

Central Intelligence Agency
10 January 1969
Page 2

Delivery of the proposed system can be accomplished seven months after the receipt of your order. To enable Control Data Corporation to thoroughly test and ensure the reliability of QSE 3763 (Teletype Corp. CX802 Paper Tape Reader Interface) and QSE 3815 (Channel Converter - 1705/360-30), it will be necessary for the Agency to make the CX802 available to our plant in Minneapolis five months prior to system delivery and the IBM 2821 Controller and 1403 Printer two months prior to system delivery.

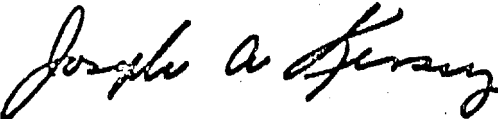
Control Data feels that the proposed 1700 Computer System will satisfy the requirements for enhancing your page composition system and will be able to satisfy your data processing requirements well into the future. Your Account Representative, Mr. Peter L. French, will be pleased to supply any additional information or assistance that you may desire.

This letter and the proposal constitute the offer by Control Data Corporation to the Central Intelligence Agency. All Terms, Conditions, and Prices are in accordance with the aforementioned GSA Contract and the proposal will be effective for sixty (60) days from the date of this letter.

We thank you for the opportunity to submit this proposal and look forward to serving you.

Very truly yours,

CONTROL DATA CORPORATION



Joseph A. Kersey, District Manager
Command & Intelligence Systems

JAK:dg

CONTROL DATA 1700 COMPUTER SYSTEM

Prepared for
CENTRAL INTELLIGENCE AGENCY
PRINTING SERVICES DIVISION

I System Concept

1. Control Data Corporation has analyzed the present computer-assisted page composing system at the Printing Services Division and has identified three general areas wherein system efficiency can be substantially enhanced through the installation of a small-scale computer system at the Printing Services Division. The three areas are: (1) the automating and/or semi-automating of existing manual functions, (2) the elimination of the necessity to depend on the Office of Computer Services for the performance of input/output operations, and (3) the establishment of a high-speed communications link between the Printing Services Division and the Office of Computer Services.

2. To accomplish the goal of increased efficiency in the three general areas mentioned above, the system must be able to satisfy the following requirements:

- (1) translate and convert source paper tape input into magnetic tape

- (2) perform on-line editing of source data by means of a sophisticated cathode ray tube entry/display sub-system
- (3) perform off-line editing and correction of source data via input of updated paper tape or magnetic tape
- (4) perform formatting and editing functions automatically -- under program control
- (5) provide for proof-reading functions via either the display sub-system, the line printer, or both
- (6) transmit data input to the Office of Computer Services (for the accomplishment of the various phases of EPIC processing) at computer speeds
- (7) receive output data from the Office of Computer Services at computer speeds
- (8) produce the final output paper tape for entry into the Photon page production stage.

3. To meet the requirements established in paragraph 2 above, Control Data Corporation proposes that

a Control Data 1700 Computer System be installed at the Printing Services Division. The specific configuration proposed (refer to Section II - Hardware Components), with its powerful central processor and various peripheral devices, will meet these requirements.

II Hardware Components

1. To provide the capability to satisfy the requirements established in Section I, Control Data has configured a 1700 Computer System particularly for this application. All of the hardware components are standard, "off the shelf," Control Data equipments with two exceptions. One is QSE 3815, Data Channel Converter, 1705/360-30, which allows the 1700 to interface the IBM 2821 Controller and 1403 Printer. The other is QSE 3763, TTY CX802/1700 Interface, which allows the 1700 to interface a Teletype Corporation Model CX802 Mechanical Paper Tape Reader. Paragraph 2 below specifies the hardware proposed for the system and Figure 1 is a System Diagram depicting the relationship of the system components.

2. The hardware proposal is as follows:

<u>Quantity</u>	<u>Model No.</u>	<u>Description</u>
1	1704	Basic Computer: Includes 4,096 18-bit words of storage; 1.1 microsecond cycle time; multiply/divide; two interrupts; and program protect features.

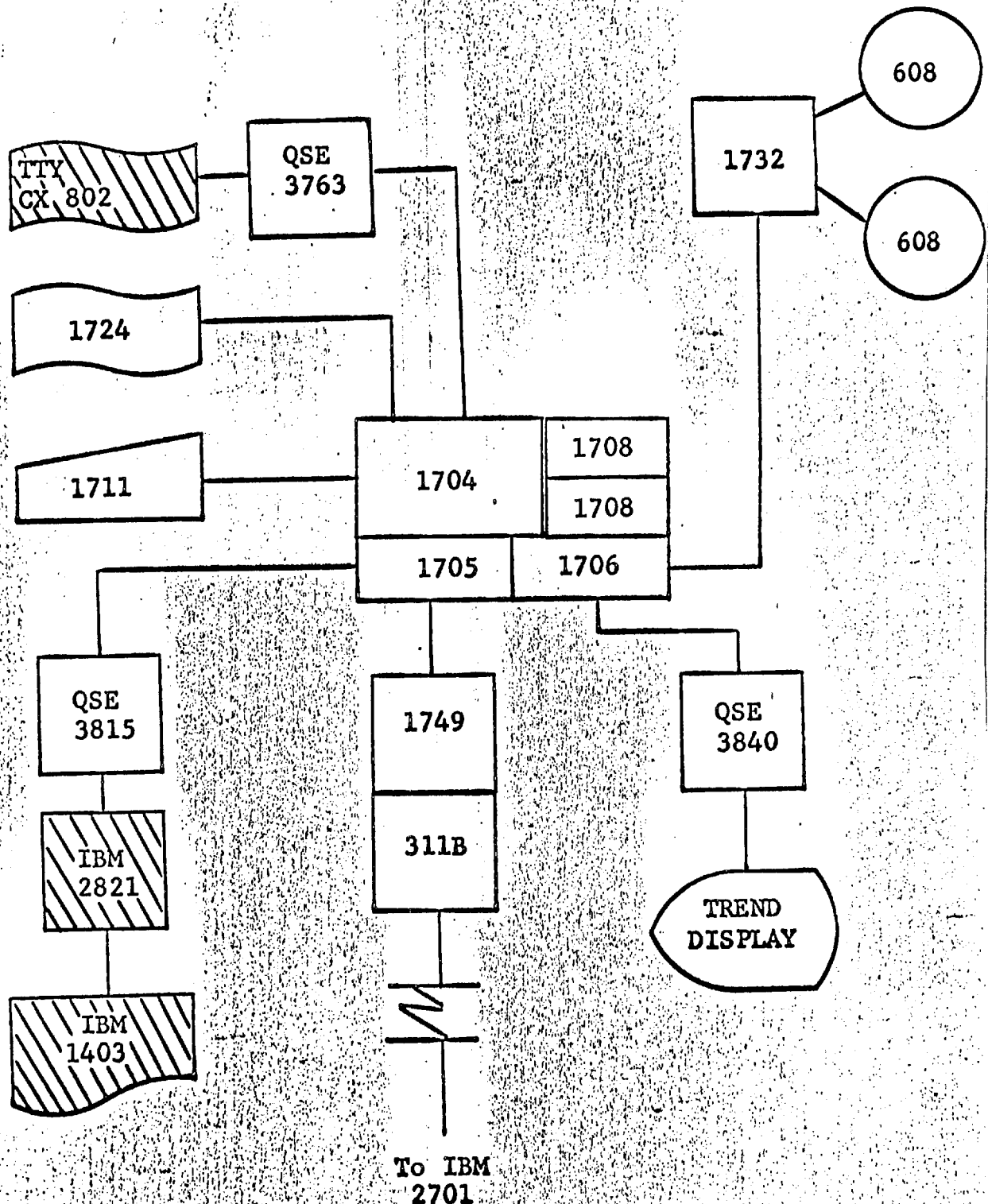
<u>Quantity</u>	<u>Model No.</u>	<u>Description</u> (Continued)
2	1708	Storage Increment-4K: 4,096 18-bit words of magnetic storage; read/write control; program protect; and parity checking.
1	1705	Interrupt Data Channel: Provides 14 additional in- terrupts; implements direct data transfers through AQ Register; provides facility for connecting 1706 buffer channel to storage bus.
1	1706	Buffered Data Channel: Implements high speed buffered data transfer between storage bus and peripheral controllers.
1	1711	Teletypewriter: 35KSR, with control; 100 WPM; includes keyboard, printer and connection for 1704.
1	1724	Paper Tape Punch w/Handler: 120 CPS; take-up and supply reels.
1	1749	Communication Terminal Controller: Controls up to eight 311B Data Set Adapters.
1	311B	Data Set Adapter: Three basic operational modes: ASCII, IBM 478, and Universal (characters sampled in 8-bit bytes); up to 40.8 KC transfer rates.
1	1732	Magnetic Tape Controller 1X8: Permits reading and writing on any one of eight models 608 and 609 Magnetic Tape Transports; includes character assembly/disassembly.

<u>Quantity</u>	<u>Model No.</u>	<u>Description (Continued)</u>
2	608	Magnetic Tape Transport: Seven track; 37.5 inches per second; 200, 556, and 800 characters per inch; 7.5, 20.8, and 30KC trans- fer rates; read forward and reverse.
1	QSE 3840	Trend Display System: Controller (1X12) and Display Station; full edit capability. Basic features include: repeat, skip, backspace, reset, tab, tab set, line up, line down, delete, insert, line clear, selective clear, 10 function keys and 4 status switches.
1	QSE 3815	Data Channel Converter, 1705/360-30: Allows IBM 2821 Controller and 1403 Printer to interface 1700.
1	QSE 3763	TTY CX802/1700 Interface: Allows Teletype Corp. Model CX802 Mechanical Paper Tape Reader to in- terface 1700.

Figure 1

SYSTEM DIAGRAM

Note: Shaded items represent Government-furnished equipment.



III Software Support

1. With the proposed system, Control Data will deliver and install the following software: a standard Control Data 1700 Operating System, drivers for the standard Control Data peripherals, and drivers for the IBM 1403 Printer and Teletype Corp. Model CX 802 Paper Tape Reader. In addition, Control Data will furnish analyst support to assist in the writing of applications software for the system.
2. Specifically, the software provided will be as follows:
 - (1) The standard 1700 Operating System called Utility System. This is designed for non-disk based systems, acts as a system executive and provides drivers for the 1711 Teletypewriter, 1724 Paper Tape Punch, 1732 Magnetic Tape Controller and Model 608 Magnetic Tape Transports.
 - (2) The driver for the 1749/311B communication sub-system will be a modification of existing software on disk-based systems.

- (3) The driver for the Teletype Model CX 802 Paper Tape Reader will be a modification of the existing software for the Control Data 1722 Paper Tape Reader. The modification is necessary to accommodate the 6-level capability of the CX 802.
 - (4) The driver for the Trend Display System will be a modification of existing software on disk-based systems.
 - (5) The driver for the IBM 1403 Printer will be developed expressly for this system.
3. Control Data Corporation will require the assistance of Agency personnel familiar with the IBM 1403 Printer in the development of the software mentioned in paragraph 2(5) above, and will require the assistance of Agency personnel familiar with the EPIC system in the development of applications software.
4. While Control Data intends to deliver and install the software as soon as the hardware is installed, this system is unique in several aspects and there

is no configuration in existence completely identical. Therefore, certain portions of the software may have to be de-bugged on the proposed system after its installation. Every effort will be made, however, to accomplish final software de-bugging prior to system delivery.

IV Maintenance Service

1. If the proposed system is purchased, a separate maintenance contract must also be issued if the Agency desires Control Data Corporation to maintain the system. Prices for the standard and extended maintenance coverages are included in Pricing Schedule No. 4, Maintenance Prices. Such maintenance will be provided in accordance with Special Item 132-11 of the GSA Contract.
2. If the proposed system is rented, basic maintenance coverage is supplied free of charge to the Agency and in accordance with Special Item 132-1, Paragraph 6, of the GSA Contract. Extended maintenance coverage is also available for rented systems and is computed in the same manner as for purchased systems (refer to Price Schedule No. 4, Maintenance Prices).

V Training and Technical Services

1. In accordance with Special Item 132-1, Paragraph 11 and Special Item 132-6, Paragraph 6 of the GSA Contract, Control Data will provide training and technical services to the Agency as follows:
 - a. Training - Control Data, without additional charge to the Agency, shall train an adequate number of operating and programming personnel, including the initial staff and replacement, at Control Data's training location, or if mutually agreed to, at a Government location.
 - b. Technical Services - Control Data's technical personnel shall be available to assist the Agency in implementation, review and improvement of existing data processing systems and in programming, development and implementation of new systems involving Control Data's equipment.
2. Control Data will furnish the technical assistance necessary for proper site preparation, without cost to the Agency, and in accordance with Special Item 132-1, Paragraph 12 and Special Item 132-6, Paragraph 7 of the GSA Contract.

VI Expansion Capability

1. Control Data realizes that while the Agency desires a system to perform specific functions necessitated by present requirements, the system must be capable of expansion as work loads increase and/or the Agency desires to utilize the system for additional applications. The degree to which the proposed 1700 System can be expanded is one of its major attributes.
2. The proposed system may be expanded in any or all of the following ways:
 - (1) Core storage can be increased in 4K increments to a total of 32K.
 - (2) Six additional Magnetic Tape Transports can be accommodated by the 1732 Magnetic Tape Controller.
 - (3) Eleven additional Trend Display Stations can be accommodated by the Trend Display Controller.
 - (4) Seven additional 311B Data Set Adapters (for high speed communication), fourteen full duplex Teletype Line Data Set Adapters, or a combination

of both types can be accommodated by the 1749 Communication Terminal Controller.

- (5) Other types of peripheral devices may be added to the system. A partial list of available peripherals for the 1700 System follows: drum storage devices, disk storage devices, high speed paper tape readers, card readers, card punches, graphic display equipment, optical character recognition equipment, analog equipment, and other devices. In addition, the 1700 may be linked by a direct satellite coupler channel to larger Control Data computers such as the 3000 and 6000 Series.

VII Price Information

1. The following four Pricing Schedules provide prices for Purchase, Rental, Extended Term Rental, Maintenance, and Optional Maintenance contracts.

Several items should be noted before computing the total contract price to the Agency:

- (1) All Rental and Maintenance contracts, since these are billed monthly, qualify for the 1% Prompt Payment Discount, which is explained in Special Item 132-1, Paragraph 5(b); Special Item 132-6, Paragraph 3(c); and Special Item 132-11, Paragraph 6(a) of the GSA Contract.
- (2) Under the terms of the Extended Term Rental Plan, contained in Special Item 132-1, Paragraph 21, the Agency receives a 10% discount over a period of three years. Basically, the rental prices during the first year are 3% higher than the standard basic rental prices, identical to the standard basic rental prices during the second year, and 13% lower than the standard basic rental price during the third year -- resulting in a net discount

over the three years of 10%.

(3) Should the system be procured under a Rental agreement, the Agency still maintains an option to convert to Purchase. This is detailed in Special Item 132-1, Paragraph 19 of the GSA Contract. Basically, the Agency will be given a purchase option credit of 65% of the rental paid if the conversion to purchase occurs within one year, 60% if the conversion to purchase occurs during the second year, and 55% if the conversion to purchase occurs beyond the second year.

(4) The Agency may, if it so desires, place some components of the system under a Rental plan and purchase other components. An example of the economic sense of such a "mixed" contract would be the case of QSE's 3763 and 3815. Since our policy is to amortize the cost of these special items over a much shorter time period than for standard products, the Rental prices of these units are inordinately high in comparison to the standard units. Thus, these two items might be purchased and the rest of the system rented -- resulting in a substantial long-term saving.

PRICING SCHEDULE NO. 1

PURCHASE*

<u>Qty.</u>	<u>Model No.</u>	<u>Description</u>	<u>Purchase Price</u>
1	1704	Basic Computer	\$ 29,000
2	1708	4K Storage Increment	16,000
1	1705	Interrupt Data Channel	4,000
1	1706	Buffered Data Channel	8,000
1	1711	Teletypewriter	4,000
1	1724	Paper Tape Punch	6,700
1	1732	Magnetic Tape Controller	11,800
2	608	Magnetic Tape Transport	31,000
1	1749	Communication Terminal Controller	13,000
1	311B	Data Set Adapter	5,700
1	QSE 3840	Trend Display System Controller - 18,100 Display Station - <u>3,900</u>	22,000
1	QSE 3763	TTY CX802/1700 Interface	11,070
1	QSE 3815	Data Channel Converter	<u>27,240</u>
TOTAL CONTRACT PRICE			<u>\$189,510</u>

*GSA Contract, Special Item 132-6, applies.

PRICING SCHEDULE NO. 2

RENTAL*

<u>Qty.</u>	<u>Model No.</u>	<u>Description</u>	<u>Basic Monthly Rental Price</u>
1	1704	Basic Computer	\$ 900
2	1708	4K Storage Increment	510
1	1705	Interrupt Data Channel	125
1	1706	Buffered Data Channel	250
1	1711	Teletypewriter	155
1	1724	Paper Tape Punch	205
1	1732	Magnetic Tape Controller	360
2	608	Magnetic Tape Transport	760
1	1749	Communication Terminal Controller	360
1	311B	Data Set Adapter	140
1	QSE 3840	Trend Display System Controller - 605 Display Station - <u>135</u>	740
1	QSE 3763	TTY CX802/1700 Interface	740
1	QSE 3815	Data Channel Converter	<u>1,830</u>
		TOTAL CONTRACT PRICE	\$ 7,075
		LESS 1% PROMPT PAYMENT DISC.	<u>71</u>
		NET PRICE	<u>\$ 7,004</u>

*GSA Contract, Special Item 132-1, applies.

PRICING SCHEDULE NO. 3
EXTENDED TERM PLAN RENTAL*

<u>Quantity</u>	<u>Model No.</u>	<u>Description</u>	<u>Basic Monthly Rental</u>		
			<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>
			\$ 927	\$ 900	\$ 792
1	1704	Basic Computer	526	510	448
2	1708	4K Storage Increment	129	125	110
1	1705	Interrupt Data Channel	258	250	220
1	1706	Buffered Data Channel	160	155	136
1	1711	Teletypewriter	211	205	180
1	1724	Paper Tape Punch	371	360	317
1	1732	Magnetic Tape Controller	782	760	668
2	608	Magnetic Tape Transport			
1	1749	Communication Terminal	371	360	317
		Controller	144	140	123
1	311B	Data Set Adapter	762	740	644
1	QSE 3840	Trend Display System	762	740	644
1	QSE 3763	TTY CX802/1700 Interface	1,885	1,830	1,592
1	QSE 3815	Data Channel Converter			
		TOTAL CONTRACT PRICE	\$7,288	\$7,075	\$6,191
		LESS 1% PROMPT PAYMENT DISCOUNT	73	71	62
		NET PRICE	\$7,215	\$7,004	\$6,129

*GSA Contract, Special Item 132-1, Paragraph 21, applies

PRICING SCHEDULE NO. 4

MAINTENANCE*

<u>Qty.</u>	<u>Model No.</u>	<u>Description</u>	<u>Basic Mthly. Maint. Chrg.</u>
1	1704	Basic Computer	\$ 105
2	1708	4K Storage Increment	70
1	1705	Interrupt Data Channel	25
1	1706	Buffered Data Channel	30
1	1711	Teletypewriter	35
1	1724	Paper Tape Punch	35
1	1732	Magnetic Tape Controller	45
2	608	Magnetic Tape Transport	210
1	1749	Communication Terminal Controller	55
1	311B	Data Set Adapter	23
1	QSE 3840	Trend Display System	119
1	QSE 3763	TTY CX802/1700 Interface	12
1	QSE 3815	Data Channel Converter	<u>75</u>
		TOTAL CONTRACT PRICE	\$ 839
		LESS 1% PROMPT PAYMENT DISCOUNT	<u>84</u>
		NET PRICE	<u>\$ 755</u>

*GSA Contract, Special Item 132-11, applies.

OPTIONAL MAINTENANCE SERVICE*

1. The Basic Monthly Rental (BMR) or Basic Monthly Maintenance Charge (BMMC), as set forth in Pricing Schedules No. 2, No. 3, and No. 4 shall entitle the Agency to maintenance service during the Principal Period of Maintenance.
2. The charge for any Extended Maintenance Period Option is based on a percentage of the Basic Monthly Rental (BMR), if the system is rented, or the Basic Monthly Maintenance Charge (BMMC), if the system is purchased.
3. The additional charge may be computed by multiplying the BMR or BMMC by the percentage indicated for the Option or Options desired, and adding this amount to the basic charge.
4. The percentages depend on the period selected and are as follows:

Monday - Friday
16 Hrs. 24 Hrs.
Per Day Per Day

35% 50%

Saturday
8 Hrs. 16 Hrs. 24 Hrs.
Per Day Per Day Per Day

15% 20% 25%

Sunday
8 Hrs. 16 Hrs. 24 Hrs.
Per Day Per Day Per Day

15% 20% 25%

5. Example of Optional Maintenance Service calculation:

The Government owns a 1700 Computer System and the Basic Monthly Maintenance Charge (BMMC) is \$1,000. The Government extends maintenance coverage to 24 hours per day, Monday through Friday, orders 16 hours of coverage on Saturday, and orders 8 hours of coverage on Sunday.

The total monthly charge is then:

1. BMMC	\$ 1,000
2. 24-Hour Option, Mon.-Fri.....	50%
3. 16-Hour Option, Sat.....	20%
4. 8-Hour Option, Sun.....	<u>15%</u>
Total Percentage	85%
5. Charge for Extended Maintenance Options (.85 x 1,000)	<u>850</u>
6. Total Monthly Charge	<u><u>\$ 1,850</u></u>

*GSA Contract, Special Item 132-1, Paragraph 6(c); and Appendix A, apply.



10 January 1969

Central Intelligence Agency
McLean, Virginia

Attention: [REDACTED]

25X1A

Gentlemen:

Subject: Applications Analyst Support

The Central Intelligence Agency presently has three small-scale Control Data Computer Systems installed (1-1700 System, 1-8092/915 System, 1-8090 System) and is currently reviewing a proposal for the installation of a 1700 System for the Printing Services Division. Should the Agency procure the proposed 1700 System for the Printing Services Division, Control Data feels that the Agency's total investment in Control Data equipment would warrant the full-time services of an on-site Applications Analyst. Thus, if the Agency accepts the proposed 1700 System for the Printing Services Division, Control Data will provide such on-site support for a period of at least one year, commencing from the date specified by the Agency.

While it is assumed that the Applications Analyst will be primarily concerned with the development of applications software for the Printing Services Division system, the gentleman selected for this assignment, Mr. Dennis Fellenz, possesses considerable experience in 915 applications and could provide assistance to the Agency in developing software for that system as well. Of course, his services might also be valuable in the development of advanced applications software for the exist-1700 System. In short, the Applications Analyst will be assigned full-time to the Agency by Control Data and will work on-site with your personnel in providing you with the software support you feel you need.

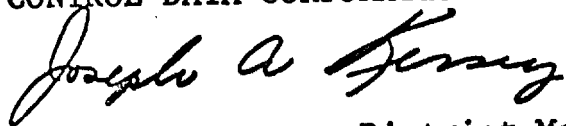
Central Intelligence Agency
10 January 1969
Page 2

The minor details of this arrangement, such as hours of work, holidays, vacation, etc., will be established by mutual agreement between Control Data Corporation and the Central Intelligence Agency.

Control Data looks forward to the opportunity to provide this additional support for the Agency and is anxious to continue its pleasant relationship with the Agency. Your Account Representative, Mr. Peter L. French, will be happy to provide any additional information that you may desire concerning this offer.

Very truly yours,

CONTROL DATA CORPORATION



Joseph A. Kersey, District Manager
Command & Intelligence Systems

JAK:dg

Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

Comparison of Available Software

CDC 1700 and IBM 360/25

<u>FUNCTION</u>	<u>1700</u>	<u>360/25</u>
1. Convert & format Paper tape to magnetic tape	N	M
2. Convert & format MTST tape to magnetic tape.	N	M
3. Retrieve & display data on scope and update.	M	M
4. Punch paper tape.	A	N
5. Print upper/lower case listing.	M	M
6. Data transmit to OCS and receive.	M	N

Legend

A = Completely available

N = Not available. Program software must be written.

M = Software exists which must be modified.

ADMINISTRATIVE
INTERNAL USE ONLY

Projects - EPIC

29 JAN 1969

MEMORANDUM FOR: Director of Logistics

SUBJECT : Report of Travel, 22-23 January 1969

1. During the period indicated in the subject, the undersigned visited two research and development facilities of the International Business Machines Corporation (IBM) in Boulder, Colorado, for the purpose of evaluating a product under development in the field of photo-composition and a product under development for a tape library system. Also participating in the visit were: Mr. [REDACTED], OL/PED;

[REDACTED], DD/P; and Messrs. Ken Williams and Hank House, IBM representatives, Washington area.

2. On the day of our arrival, we were received at the IBM plant by [REDACTED] (former Agency employee who was instrumental in the design of the Agency [REDACTED] system) and were provided a briefing concerning the characteristics and capabilities of the IBM Model 2686 Photoprinter which now is in its second phase of development. The device is designed to operate in concert with an IBM 1130 series computer, from digitized computer-stored fonts, scribing characters by electron beam on a cathode ray tube (CRT) and projection through a lens for exposure on film, sensitized paper or sensitized reproduction mats. It has a type size capability of 4-36 points in lower case and a maximum of 42 points for upper case alpha and numeric characters. Operating from computer programs, it produces hyphenated and justified lines 2-8 1/2 inches in length. Typesetting speed ranges from 32 1/2 2-inch lines of 5-12 point type per minute to 59 lines of 36 point (1 1/2-inch) type in lines 8 inches in length. From the standpoint of type quality, electron beam scribing of characters is at the rate of 800 lines per inch in each dimension. Examination of positive film output of the photoprinter indicates satisfactory graphics quality, although some irregularity in character outlines is visible with a printer's glass in the larger characters. The equipment had one feature not available on other equipment of this type which has been investigated, whereby both reverse and normal read modes are available through a switch on the control panel. Software now available for the 1130 series computer included hyphenation and single-column galley justification in addition to the actual fonts used for typesetting. It is the conclusion of PED representatives attending that the photoprinter, while offering some

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INTERNAL USE ONLY

SUBJECT: Report of Travel, 22-23 January 1969

potential advantages over the phototypesetting equipment which the Agency has contracted to buy from Photon, Inc., should not be considered further for procurement at this time. Factors leading to this conclusion are:

a. The Photon 713/70 now on order will accomplish the typesetting of all Agency publications [REDACTED] in an effective manner, and we already have obligated funds for its acquisition. If and when [REDACTED] reports are available in appropriate machine language and we have the required software, one additional Photon 713/70 (cost approximately \$60,000) should provide the increased typesetting capability required.

STATSPEC

STATSPEC

b. The Agency already has invested 4 years and substantial funds in the development of software for our current equipment. Conversion of the EPIC system from the present system to a CRT photoprinting system would necessitate a substantial amount of reprogramming which we feel cannot be justified by the rather limited advantages to the Agency of the CRT typesetter.

c. The IBM equipment is 60-100 percent faster in typesetting than the Photon 713/70, which is its primary advantage. However, as indicated in paragraph 2a above, the Photon is adequate for our requirements and, if speed were a major consideration, the 2686 photoprinter actually is in the lower range of other CRT phototypesetters available on the market today. It is our judgment that the current and foreseeable typesetting requirements of this Agency do not justify equipment faster than that which is specified for the 713/70, considering the cost factors involved.

d. Inasmuch as developmental work is not completed on the IBM equipment, no date of availability (or estimate therefor) could be obtained. Also, IBM representatives would not discuss probable cost of the equipment if and when it is marketed. We concluded that this indefiniteness militates against our further consideration of the equipment at this time.

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3. The above has been discussed in general terms with [REDACTED] OFPB, who has indicated agreement with this position. We will, of course, be on the lookout for further developments in the IBM equipment and are continuing to evaluate other technological advances in the field of printing equipment. If further developments should warrant changes in our current planning, appropriate recommendations will be made.

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INTERNAL USE ONLY

ADMINISTRATIVE

Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

INTERNAL USE ONLY

SUBJECT: Report of Travel, 22-23 January 1969

4. On the second day of our visit, and in another IBM plant in the Boulder area, we were afforded a briefing on a developmental system for the storage and retrieval of digitized information. It is known as the IBM "Cybernet" subsystem. Its purpose is to reduce operations by automating large data libraries and to provide for the systems management of data libraries. It is designed to store up to 7 million bytes of data on a single small cartridge, with a maximum of 9,080 cartridges in a single subsystem. IBM representatives Paul J. Badum, Donald C. Beal and Jerry W. Pence provided the briefing and demonstration of the current stage of development of this item. Inasmuch as this equipment was of primary interest to [REDACTED] and the DD/P representatives, it is assumed that an appropriate report thereon will be available through other administrative channels.

5. It should be noted that the items described above are in a developmental stage and may or may not be marketed. In any event, their characteristics and stage of development are privileged information and those who received the briefing were enjoined to restrict knowledge thereof to those in the Agency having a need to know.

[REDACTED]

Chief

Printing Services Division, OL

cc: OPFB
D/OCS
C/SSS-DD/S

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ADMINISTRATIVE

Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

INTERNAL USE ONLY

CONFIDENTIAL

IPC- Projects
EPIC

19 DEC 1968

MEMORANDUM FOR: Chief, Support Services Staff
SUBJECT : EPIC Program Representatives

In reply to your telephone request of 16 December 1968, the following names may be provided to the Information Handling Committee as the Agency representatives for the EPIC program:

[REDACTED]

25X1A

Room 158, Printing Services Building
Central Intelligence Agency
Washington, D.C. 20505

Telephone: 351-4435 or IDS Code 143, Extension 4435

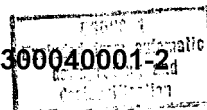
25X1A

[REDACTED]

George E. Meloon
Director of Logistics

01 8 8517

CONFIDENTIAL



IPC - Projects
EPIC

Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

October 8, 1968

25X1A

[REDACTED]

I mentioned to Mr. Bannerman your comment about the system which Briggs saw or heard described in Boulder which might replace EPIC. He reacted immediately that we should send someone from PSD to investigate this. If you have not already done so, would you talk to George Meloon and, if he wishes, to [REDACTED] on the subject.

25X1A

25X1A

guc/ms

[REDACTED]

Approved For Release 2000/05/08 : CIA-RDP78-04723A000300040001-2

CONFIDENTIAL

INC - 1207-1
EPIC

11 April 1967

MEMORANDUM FOR THE RECORD

SUBJECT: EPIC

25X1A

25X1A

[redacted] and I checked this out with [redacted] (OCS) and [redacted] (PSD).

25X1A

25X1A

[redacted] agrees with the statement of the problem in para. 3. EPIC is not now and has not been provided programming support since 3 or 4 months after initial operation. (One programmer requested re-assignment, one resigned and the Systems Analyst [redacted] was promoted to Branch Chief.)

25X1A

There are 3 program elements in the present EPIC system, the latter two, written in COBOL are working well. These two functions are concerned with the production of page composition proofs and the preparation of P. T. for the PHOTON.

The first program element, Paper Tape edit and update, is written in Auto Coder and, for this reason and because the error possibilities are not completely covered needs to be rewritten. The program was written in Auto Coder because it is large and would have exceeded core if written in COBOL. The 360 has enough core storage to handle a COBOL version.

There has been a continuing misunderstanding of the place of a "tabular" capability in the EPIC project. OCS feels that this EPIC project was solely concerned with text with a tabular capability being deferred for another project. PSD feels that the tabular capability was deferred within this project. A minor point but one that is continually discussed and argued over.

There have been hardware problems, focused mainly on Paper Tape to Mag Tape conversion. Since the return of the 1401 this conversion has been done on a (Rem Rand) 1004 in OSA. At first the results were unsatisfactory but this has improved (the first paragraph of the memo refers to this problem).

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The PSD printers have on occasion "tested the limits" for EPIC and quite often gone beyond the limits. This gives some indication that EPIC is not completely accepted in PSD.

Conclusions/Recommendations

(1) OCS should have a capability to maintain EPIC. They have recognized this for some time. The individual currently responsible for EPIC [REDACTED] has had no EPIC training or experience.

(2) PSD should strengthen its management practice with EPIC.

(3) An EPIC project plan should be prepared by PSD - be coordinated by SSS and included in the DD/S requirements for OCS support.



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6 APR 1967

MEMORANDUM FOR: Director of Computer Services

SUBJECT: Status of Project KPIC

1. Since our meeting of 9 January 1967, I am pleased to say that the problem of tape conversion of KPIC material has diminished considerably, the turn-around time for processing has greatly improved, and the cooperation from your Staff in keeping the work moving has been commendable.

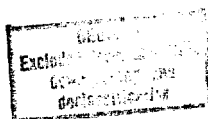
2. However, as the percentage of National Intelligence Survey work converted to the KPIC system increases, a previously identified problem again emerges which is disrupting production schedules so badly that it may be impossible to further increase the volume of work until it is remedied.

3. The problem, as we see it, is the lack of an Office of Computer Services Systems Analyst and understudy with sufficient knowledge of the KPIC system and its programs to immediately diagnose failures in the computer processing of KPIC material, locate the specific cause, and arrange for prompt corrective action, including minor program changes. Errors causing computer reprocessing and production delays are occurring daily. They result from a variety of causes (in both PSD and OCS) which certainly are to be expected at this stage of implementation. They consist of failures in procedure, equipment, and programs. The problem is compounded when skilled diagnostic help is not available since the number of computer passes required is increased by a factor of at least two to three times. As a result, multiple passes of a job are sometimes made without determination of the cause of the errors in the hope that it may correct itself. It is my understanding that continuous maintenance and debugging are normal requirements for a system of this magnitude.

4. Tabular material is a significant element of the NIS. Conversion of this material to the KPIC system was agreed upon by OCS and PSD at the outset as one of the goals of the project. However, work on this material was put aside until the text portion was completed. Tabular material is now performed separately as a Monotype (metal) operation and requires manual insertion of the film reproduction proof material into

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SUBJECT: Status of Project EPIC

the EPIC-composed film page. We feel that the task of converting the tabular material to the EPIC system is absolutely essential. Additional support in systems analysis and programming is required to implement this phase of the program.

5. While PSD realizes that there are critical shortages in the type of OCS personnel needed to provide this support, we realize also that the three directorates, namely DBI, DDCST, and DNE are committed to full implementation of the EPIC system as rapidly as possible and that the system is now at a very critical point. Termination of the project would have grave consequences as would an indefinite delay in the phasing-over of the HIS. We can only conclude that there is no alternative but to proceed with completion of the project at the earliest possible time for the following reasons:

a. The EPIC system has demonstrated the potential of computer-assisted typesetting for the Central Intelligence Agency. As anticipated, it is capable of producing the HIS more efficiently than the present manual system. Many other applications of the system are anticipated and the experience now being acquired will be used to develop additional systems for other publications.

b. In excess of 2½ years and \$150,000 in systems work and hardware have been expended. The Photon machine costing \$65,000 operates solely from computer-generated tape, and thus is useless for other applications.

c. During the phase-over period PSD is maintaining two HIS production systems with only 20 percent presently being done by the EPIC system. As a result, production problems are increased and top efficiency is not obtained.

d. An estimated five man-years have been spent in retraining PSD personnel in procedures of the EPIC system. Personnel of the Office of Basic Intelligence, OCS, and Office of Scientific Intelligence (customer tape) have also undergone training.

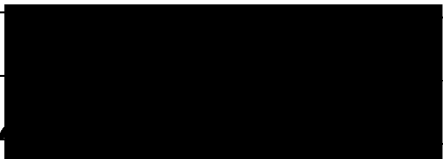

6. Considering the above I am sure you will understand our concern about the progress of this project and I would appreciate your views on what steps should be taken to fulfill our joint commitments and facilitate the completion of the work on the EPIC system.

Chief
Printing Services Division

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CENTRAL INTELLIGENCE AGENCY OFFICIAL ROUTING SLIP					
TO	NAME AND ADDRESS		DATE	INITIALS	
1	SSS/DDS				
2					
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ACTION		DIRECT REPLY		PREPARE REPLY	
APPROVAL		DISPATCH		RECOMMENDATION	
COMMENT		FILE		RETURN	
CONCURRENCE		INFORMATION		SIGNATURE	
		X			
<p>Remarks: <i>Can you two identify exactly what this problem is? Then let's discuss whether the personnel requirement in Page 3 is legitimately OCS or should we (PSD) be providing this competence ourselves?</i></p> <p style="text-align: right;"><i>RHW</i></p>					
FOLD HERE TO RETURN TO SENDER					
FROM: NAME, ADDRESS AND PHONE NO.				DATE	
 C/PSD/OL				4-6-67	
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